

## Claims

We claim:

- 1 1. A method for generating FSK symbols in a communications network,  
2 comprising:  
3       partitioning a plurality of complex values representing OFDM tones  
4 into a plurality of groups;  
5       assigning a distinct energy to each group of complex values;  
6       applying an OFDM modulator to the plurality of complex values  
7 having the assigned distinct energies to generate FSK symbols  
8 corresponding to the plurality of groups; and  
9       transmitting the FSK symbols serially.  
10
- 1 2. The method of claim 1, in which the OFDM modulator includes a single  
2 IFFT, and the distinct energies are assigned to each group according to a  
3 data stream.  
4
- 1 3. The method of claim 1, in which the OFDM modulator includes a  
2 plurality of IFFTs operating in parallel, and outputs of the plurality of IFFTs  
3 are selected according to a data stream.
- 1 4. The method of claim 1, in which a duration of each FSK symbol is  
2 smaller or equal to a duration of an OFDM symbol for which the OFDM  
3 modulator is designed.
- 1 5. The method of claim 1, in which there are 128 tones and two groups.

1 6. The method of claim 2, in which a duration of each FSK symbol depends  
2 on a spacing of the tones.

1 7. The method of claim 1, further comprising:  
2 detecting the FSK symbols in a OFDM receiver.

1 8. An OFDM transmitter for generating FSK symbols in a communications  
2 network, comprising:  
3 means for partitioning a plurality of complex values representing  
4 OFDM tones into a plurality of groups;  
5 means for assigning a distinct energy to each group of complex  
6 values;  
7 an OFDM modulator configured to apply OFDM modulation to the  
8 plurality of complex values having the assigned distinct energies to generate  
9 FSK symbols corresponding to the plurality of groups; and  
10 means for transmitting the FSK symbols serially.